



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/577,980	05/01/2006	Thomas Durbaum	DE03 0372 US1	5196
65913	7590	10/22/2007		
NXP, B.V. NXP INTELLECTUAL PROPERTY DEPARTMENT M/S41-SJ 1109 MCKAY DRIVE SAN JOSE, CA 95131			EXAMINER HANSEN, STUART ALAN	
			ART UNIT 2838	PAPER NUMBER
			NOTIFICATION DATE 10/22/2007	DELIVERY MODE ELECTRONIC

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

ip.department.us@nxp.com

Office Action Summary

Application No.

10/577,980

Applicant(s)

DURBAUM ET AL.

Examiner

Stuart Hansen

Art Unit

2838

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1 is/are pending in the application.
- 4a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) ____ is/are allowed.
- 6) ☒ Claim(s) 1-5 and 7-10 is/are rejected.
- 7) ☒ Claim(s) 6 and 11 is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on ____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. ____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date 5/1/2006.
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. ____.
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: ____.

Art Unit: 2838

DETAILED ACTION

1. This Office Action is in response to the Application, 10/577,980, filed May 1st, 2006.

Drawings

2. The drawings are objected to under 37 CFR 1.83(a). The drawings must show every feature of the invention specified in the claims. Therefore, the forward converter is part of a PC power supply and the device is a PC must be shown or the feature(s) canceled from the claim(s). No new matter should be entered.

Corrected drawing sheets in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. The figure or figure number of an amended drawing should not be labeled as "amended." If a drawing figure is to be canceled, the appropriate figure must be removed from the replacement sheet, and where necessary, the remaining figures must be renumbered and appropriate changes made to the brief description of the several views of the drawings for consistency. Additional replacement sheets may be necessary to show the renumbering of the remaining figures. Each drawing sheet submitted after the filing date of an application must be labeled in the top margin as either "Replacement Sheet" or "New Sheet" pursuant to 37 CFR 1.121(d). If the changes are not accepted by the examiner,

the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

Claim Objections

3. Claim 5 is objected to because of the following informalities: Said claim states that the third switch is open during operation, but then says when the second rectifier circuit provides the stand-by voltage, which would indicate that the third switch is open during stand-by, not operation. Appropriate correction is required.

Claim Rejections - 35 USC § 102

4. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 1, 3 7 and 8 are rejected under 35 U.S.C. 102(b) as being anticipated by Yang. (US 6,977,823 B2, filed 10/28/2003, dated 12/20/2005).

Regarding claim 1, Yang teaches: A forward converter (Fig 4), comprising: a first rectifier circuit (Fig 4 [205, 209]) having a first output (Fig 4 [V_{out1}]); a second rectifier circuit (Fig 4 [211, 212]) having a second output (Fig 4 [V_{out2}]); wherein a first switch (Fig 4 [209]) is provided in the first rectifier circuit; and wherein a second switch (Fig 4 [211]) is provided in the second rectifier circuit; wherein, by switching the first and second switches, the first and second outputs may be selectively switched off (Column 5 lines 1

– 7; If either of the switches in the first or second rectifier circuits are switched off then the outputs of said rectifier circuits is also selectively off under control of the control circuits.).

With respect to claim 3, Yang teaches: wherein the first and second rectifier circuits each have a winding (Fig 4 [205, 211]); wherein the windings of the first and second rectifier circuits are associated with the same transformer (Fig 1 [203, 204]).

In regards to claim 7, Yang teaches: wherein the first switch is a bi-directional switch (Fig 4 [209]).

Referring to claim 8, Yang teaches: The method of operating a forward converter (Fig 4), the forward converter having a first rectifier circuit (Fig 4 [205, 209]) having a first output (Fig 4 [V_{out1}]) and a second rectifier circuit (Fig 4 [211, 212]) having a second output (Fig 4 [V_{out2}]), wherein a first switch (Fig 4 [209]) is provided in the first rectifier circuit, and wherein a second switch (Fig 4 [211]) is provided in the second rectifier circuit, the method comprising the step of selectively switching off the first and second outputs by switching the first and second switches (Column 5 lines 1 – 7; If either of the switches in the first or second rectifier circuits are switched off then the outputs of said rectifier circuits is also selectively off under control of the control circuits.).

Claim Rejections - 35 USC § 103

5. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the

Art Unit: 2838

invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 2 and 9 are rejected under 35 U.S.C. 103(a) as being unpatentable over Yang. (US 6,977,823 B2, filed 10/28/2003, dated 12/20/2005) as applied to claims 1 and 8 above respectively, and further in view of Chen et al. (US 5,521,807, filed 12/16/1993, dated 5/28/1996).

Referring to claim 2, Yang fails to teach: wherein a third rectifier circuit is provided; wherein the third rectifier circuit is connected to the first rectifier circuit by a coupled inductor.

Chen et al., however, does teach: wherein a third rectifier circuit is provided (Fig 4 [Ns_n, diodes and capacitors]); wherein the third rectifier circuit is connected to the first rectifier circuit by a coupled inductor (Fig 4; Inductor Ns₁ of the first rectifier circuit is coupled to inductor Ns_n of the third rectifier circuit.).

Chen et al. and Yang both teach forward converters with multiple output means from multiple secondary windings, therefore it would have been obvious to one of ordinary skill in the art at the time the invention was made to include the third rectifier circuit of Chen et al. with the forward converter of Yang for the purpose of including an additional output which can supply more power to the load of the other rectifier circuits or to additional loads eliminating a requirement for another converter circuit.

With respect to claim 9, Yang fails to teach: a third rectifier circuit is provided, the method further comprising the step of: operating the third rectifier circuit and the first rectifier circuit by a coupled inductor.

Chen et al. however does teach: a third rectifier circuit is provided (Fig 4 [N_{s_n} , diodes and capacitors]), the method further comprising the step of: operating the third rectifier circuit and the first rectifier circuit by a coupled inductor (Fig 4; Inductor N_{s_1} of the first rectifier circuit is coupled to inductor N_{s_n} of the third rectifier circuit.).

Chen et al. and Yang both teach forward converters with multiple output means from multiple secondary windings, therefore it would have been obvious to one of ordinary skill in the art at the time the invention was made to include the third rectifier circuit of Chen et al. with the forward converter of Yang for the purpose of including an additional output which can supply more power to the load of the other rectifier circuits or to additional loads eliminating a requirement for another converter circuit.

6. Claims 4 and 10 are rejected under 35 U.S.C. 103(a) as being unpatentable over Yang. (US 6,977,823 B2, filed 10/28/2003, dated 12/20/2005) as applied to claims 1 and 8 above respectively, and further in view of Jang et al. (US 7,218,081 B2, filed 4/29/2004, dated 5/15/2007).

In regards to claim 4 Yang fails to teach: wherein the forward converter is adapted for connection to a device; wherein, when the first switch is closed and the second switch is open, the first rectifier provides an operation voltage for the device; and wherein, when the first switch is open and the second switch is closed, the second rectifier provides a standby-by voltage for the device.

Jang et al. though does teach: the forward converter is adapted for connection to a device (Fig 1 [connected to one of $V_{O1} - V_{ON}$ and $V_{SB1} - V_{SBN}$ respectively]); for

providing a regular operational voltage (Fig 1 [$V_{O1} - V_{ON}$]) and also for providing a stand-by voltage (Fig 1 [$V_{SB1} - V_{SBN}$ respectively]; Column 1 lines 34 – 50; Column 2 lines 14 – 36).

Jang et al. and Yang both use forward type voltage converters for the purpose of supplying power to load devices, therefore it would have been obvious to one of ordinary skill in the art at the time the invention was made to use the switching between operational and stand-by voltages as performed by Jang et al. in the system of rectifier circuits of Yang by switching the first and second rectifier circuits on/off respectively as claimed in the present application for the purpose of conserving energy from the rectifier circuits by turning off the operational rectifier circuit and from the load by entering a stand-by mode with the stand-by supply voltage.

Regarding claim 10, Yang fails to teach: when the first switch is closed and the second switch is open, the first rectifier provides an operation voltage for a device; and wherein, when the first switch is open and the second switch is closed, the second rectifier provides a standby-by voltage for the device.

Jang et al. though does teach: providing an operational voltage (Fig 1 [$V_{O1} - V_{ON}$]) from a first circuit (Fig 1 [106]) for a device (Fig 1 [Connected to $V_{O1} - V_{ON}$]); and wherein, the second circuit (Fig 1 [108]) provides a standby-by (Fig 1 [$V_{SB1} - V_{SBN}$]; Column 1 lines 34 – 50; Column 2 lines 14 – 36) voltage for the device.

Jang et al. and Yang both use forward type voltage converters for the purpose of supplying power to load devices, therefore it would have been obvious to one of ordinary skill in the art at the time the invention was made to use the switching between

Art Unit: 2838

operational and stand-by voltages as performed by Jang et al. in the system of rectifier circuits of Yang by switching the first and second rectifier circuits on/off respectively as claimed in the present application for the purpose of conserving energy from the rectifier circuits by turning off the operational rectifier circuit and from the load by entering a stand-by mode with the stand-by supply voltage.

7. Claim 5 is rejected under 35 U.S.C. 103(a) as being unpatentable over Yang. (US 6,977,823 B2, filed 10/28/2003, dated 12/20/2005) in view of Jang et al. (US 7,218,081 B2, filed 4/29/2004, dated 5/15/2007) as applied to claim 4 above.

Yang in view of Jang et al. fails to teach: wherein the forward converter is part of a PC power supply and the device is a PC.

Computers are well known to those skilled in the art for frequently changing between operational and stand-by modes to prevent over heating and to conserve power, therefore it would have been obvious to one of ordinary skill in the art at the time the invention was made for the output device of Yang in view of Jang et al. to be a personal computer (PC).

Allowable Subject Matter

8. Claims 6 and 11 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Regarding claim 6, the allowability of the overall structure resides in the device as claimed and at least in part of the claimed combination for the: fourth rectifier circuit provided; a third switch provided in a connection between the fourth rectifier circuit and the second rectifier circuit; the third switch is closed during operation when the first rectifier circuit provides the operation voltage and wherein the third switch is open during operation when the second rectifier circuit provides the stand-by voltage.

With respect to claim 11, the allowability of the overall method resides in the method as claimed and at least in part of the claimed combination for the: fourth rectifier circuit provided, wherein a third switch provided in a connection between the fourth rectifier circuit and the second rectifier circuit, the method further comprising the step of: operating the third switch such that it is closed during operation when the first rectifier circuit provides the operation voltage and open during operation when the second rectifier circuit provides the stand-by voltage.

Conclusion

9. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Stuart Hansen whose telephone number is (571) 270-1611. The examiner can normally be reached on 8-5:30 Mon - Thurs, every 2nd Fri 8-4:30.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Hezron Williams can be reached on (571) 272-2208. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Art Unit: 2838

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

Stuart Hansen
October 15, 2007



BAO Q. VU
PRIMARY EXAMINER